INDEX

HIGH ENERGY CHEMISTRY

Volume 4, Numbers 1-6, 1970

HIGH ENERGY CHEMISTRY
Volume 4, Numbers 1-6, 1970
(A translation of Khimiya Vysokikh Énergii)

A

Abdrashitov, E. F.-384
Ageev, N. G.-403
Akopyan, M. E.-186, 265, 306, 307, 308
Alfimov, M. V.-249
Andreev, O. M.-249
Andrushchenko, D. A.-144
Arifov, U. A.-456
Arkhipov, V. P.- 317, 318
Avdonina, E. N.-71, 196, 253, 479

B

Babeshkin, A. M.-284
Bagdasar'yan, Kh. S.-28
Bakh, N. A.-275
Barelko, E. V.-199
Barkalov, I. M.-69, 299, 394
Batsanov, S. S.-132
Batyuk, I. A.-122
Bazhenov, B. A.-505
Bazov, V. P.-111, 150
Bekker, A. A.-284
Belen'kii, L. I.-204
Belevskii, V. N.-421
Belyaev, Yu. N.-224
Benderskii, V. A.-300, 413
Berdnikov, V. M.-314
Berestnev, V. A.-330
Bezzubenko, T. A.-492
Biktimorov, R. S.-144
Bobrovskii, A. P.-303
Bondarevskii, S. I.-429
Borisov, E. A.-501
Borisova, E. N.-122
Borodaevskii, V. E.-132
Breslav, Yu. A.-127, 303
Brodskii, A. M.-87, 171, 258, 302, 451
Brusentseva, S. A.-77, 339
Buben, N. Ya.-384
Budkevich, B. A.-251
Bugaenko, L. T.-122, 421
Bulanov, L. A.-501
Butuzov, V. P.-159
Butylkin, Yu. P.-462
Byakov, V. M.-122, 220, 333, 496

C

Chelnokov, A. A.-98
Chernenko, A. A.-258, 302
Chernov, I. G.-456
Chernyak, N. Ya.-231
Chernyavskii, G. V.-144
Chervonenko, V. S.-320, 402
Chibisov, A. K.-146, 235
Chirkin, N. N.-161
Chkheidze, I. I.-204, 315, 483

D

Degterev, I. A.-168
Deribas, A. A.-79
Dmitriev, L. A.-57
Dodonov, A. M.-312
Dolin, P. I.,-77, 337
Dontsova, E. G.-65
Dulin, I. N.-394
Dvindenko, I. A.-98
Dzantiev, B. G.-75, 168, 299, 316, 353, 494
Dzhagatspanyan, R. V.-296
Dzhibgashvili, G. G.-245
Dziedziela, V.-216

E

Egorov, E. V.-69
Egorov, G. F.-81, 148
Egorova, Z. S.-236
Eliseeva, N. N.-471
Eremin, L. P.-163, 429
Erofeev, B. V.-404
Ershov, B. G.-165
Ershov, V. A.-98
Evdokimov, O. B.-311
Ezerska, K.-243

F

Fedoseeva, T. V.-231
Fel', N. S.-155, 337
Filatov, E. S.-153, 417, 419
Frisov, V. G.-398
Fokin, E. P.-79
Fomin, O. K.-242
Fomina, N. N.-343
Forys, M.-243
Frabrichnyi, P. B.-248
Frankevich, E. L.-291

G

Gak, Yu. V.-401
Galkin, N. P.-462
Glazunov, P. Ya.-330
Glukhov, V. I.-118
Goglev, R. S.-401
Gol'danskii, V. I.-299, 300, 387, 413
Golubev, V. B.-391, 421
Goryachev, A. N.-491
Goryaev, N. M.-330
Greben, V. P.-237
Greish, A. A.-312
Gulyaev, G. V.-231
Gur'ev, M. V.-238
Gur'eva, N. A.-242
Gusakovskaya, I. G.-387
Guseva, L. N.-19

I

Ignatovich, T. N.-62, 394
Iskakov, L. I.-345
Ivanov, V. S.-318

K

Kabakchi, A. M.-328, 425
Kabakchi, S. A.-335
Kachan, A. A.-144
Kadenatsi', B. M.-159
Kalyazin, E. P.-220, 333
Kamenetskaya, S. A.-57, 379
Kamyshov, N. V.-224
Kaplan, A. M.-299
Kaplunov, M. Ya.-330
Karachevtsev, G. V.-239, 347, 415
Karasev, A. L.-46

Karpov, V. L.-149, 236, 245
Karyakin, A. V.-235
Kayushin, L. P.-40
Kershulis, V. I.-81, 148
Khachoyan, A. V.-182
Khairutdinov, R. F.-341
Kholmogorov, V. E.-23, 270, 303
Khudyakov, G. N.-468
Kim, I. P.-69
Klinshpont, É. R.-73
Klolmogorov, V. E.-102
Kobzev, Yu. N.-468
Kocheshkov, K. A.-343
Kogan, A. M.-239
Kolbanovskii, Yu. A.-391
Kondrat'ev, V. A.-28
Kondrat'ev, Yu. A.-144
Korchak, V. N.-353
Korolev, D. F.-159
Korshunov, L. I.-300, 413
Kotov, A. G.-35, 52, 127, 303
Kovalevskii, V. I.-407
Kozlov, G. I.-468
Kozlov, V. T.-291
Kozlov, Yu. N.-313, 314
Kritskaya, D. A.-287
Krivenko, V. G.-40
Krivernkova, P. G.-159
Kroh, E.-213, 216
Krongauz, V. A.-111, 150, 152
Kukin, P. P.-153
Kuleshov, A. P.-483
Kupriyanov, S. E.-93, 408, 410, 503
Kurmashov, Sh.-299
Kuz'min, V. A.-19, 146

L

Lagucheva, R. M.-149
Lapshin, A. I.-132
Larin, I. K.-239
Larin, V. A,-46
Lashkov, G. I.-362
Lavrovskii, K. P.-247
Lebedeva, A. M.-149
Lebedev, S. N.-391
Legun, V. V.-353
Leonas, V. B.-224
Leshchenko, S. S.-236, 245
Levich, V. G.-87, 171
Losev, S. A.-177, 227
Loskutov, V. A.-79
Lotkova, E. N.-405
Lukhvitskii, V. I.-149
Lukovnikov, A. F.-401
Lykhin, V. M.-489
Lyubimova, O. I.-52

M

Makarov, V. A.-417, 419
Makarov, V. I.-1
Maksimov, A. I.-240, 241, 247, 492
Malievskii, A. D.-315
Mali, V. I.-79
Mal'tsev, A. N.-137
Margulis, M. A.-137
Masterova, M. N.-391
Milinchuk, V. K.-73
Moralev, V. M.-157
Mosse, A. L.-98
Mostovaya, E. M.-239
Muratbekov, M. B.-322
Myasishcheva, G. G.-398

N

Naumova, S. F.-404
Nesmeyanov, A. N.-417
Nesmeyanov, An. N.-284
Nichiporov, F. G.-496, 498
Nikol'skii, V. G.-387
Novikov, G. F.-291
Novikov, N. P.-247

O

Obukhov, Yu. V.-398
Ochkin, V. N.-405
Orekhov, V. D.-328, 425
Orlov, V. Yu.-238

P

Pankratov, A. A.-107
Pankratova, L. N.-491
Parshutkin, A. A.-111, 150
Pechkovskii, S. E.-98
Perov, A. A.-410, 503
Pershin, A. D.-494
Petrukhin, N. V.-379
Petshak, M.-213
Pichuzhkin, V. I.-275
Pikaev, A. K.-166, 406, 427, 431
Piskunov, A. K.-366
Plavnik, G. M.-330
Podzorova, E. A.-328, 425
Polak, L. S.-1, 182, 231, 391
Polikarpov, V. V.-149
Poluéktov, V. A.-403
Pomytkin, A. P.-326
Ponomarev, A. N.-287
Popov, V. N.-75
Potapov, V. K.-309, 345, 411, 505, 508
Pozdeev, V. V.-284, 343
Pozharov, S. L.-456
Poznyak, A. L.-251
Pravilov, A. M.-191, 359, 412, 475
Pribush, A. G.-77
Prokhoda, A. L.-152
Pshezhetskii, S. Ya.-35, 57, 208, 303, 402
Pulatova, M. K.-40
Puntezhis, S. A.-166
Purmal, A. P.-314

R

Raiisimring, A. M.-157, 326
Roganov, V. S.-398
Roginskii, V. A.-208, 320, 402
Roitman, G. P.-235
Romanovskii, V. N.-317
Ryabchikova, G. G.-330
Ryl'kov, V. V.-102, 270, 305

S

Safin, Yu. A.-296
Sapezhinskii, I. I.-65
Saraeva, V. V.-275, 322
Semushin, A. M.-317
Seregin, P. O.-429
Seregin, P. P.-163
Sergeev, I. L.-306
Sergeev, Yu. L.-186, 265, 307, 308
Shagisultanova, G. A.-251
Shamonina, N. F.-35
Shatalov, O. P.-227
Shatrov, V. D.-204
Shelimov, B. N.-341
Shimchuk, O. S.-316, 494
Shipatov, V. T.-163, 429
Shiryaeva, G. V.-118
Shishkov, A. V.-316, 494
Shorin, S. N.-499
Shostenko, A. G.-312
Shrubovich, V. A.-144
Shubin, V. N.-77, 333, 434
Shvedchikov, A. P.-168, 299, 353, 471
Sibirskaya, G. K.-427
Sil'chenko, Yu. I.-375
Simonov, E. F.-145
Sizov, V. D.-240, 241
Skurat, V. E.-370
Slovokhotova, N. A.-245
Smelova, Yu. N.-75
Smetanina, L. B.-236
Smirnov, V. A.-249
Smorodin, A. I.-499

Sobolev, N. N.-405
Sokolov, I. B.-324, 407, 423
Sokolov, V. F.-492
Solyanina, I. P.-199
Sorokin, V. V.-310, 411, 508
Spitsyn, V. I.-330
Starodubtseva, E. V.-501
Sukhov, V. A.-401
Svettsov, V. I.-492

T

Tal'roze, V. L.-2, 39, 287
Tantsyrev, G. D.-471
Tararyshkina, L. I.-240, 241
Tarasov, V. A.-163
Taube, M.-243
Temchin, A. N.-182
Temkin, A. Ya.-451
Teterevkov, A. I.-98
Tikhomirov, L. A.-384
Tolkachev, V. A.-279, 324, 407, 423
Tolmachev, V. B.-171
Tolmachev, V. V.-87
Trofimov, V. I.-315, 483
Troitskii, V. N.-499
Tseitlin, E. L.-165
Tsvetkov, Yu. D.-157, 326
Tsvetkova, Z. N.-199
Tsykalo, L. G.-404
Tulupov, P. E.-237
Tumanov, Yu. N.-462
Tverdokhlebov, V. I.-161

V

Vanshtein, B. I.-375
Vasil'ev, V. G.-366
Verbovskaya, G. V.-408, 410
Verein, N. V.-366
Vereshchinskii, I. V.-328, 425, 437
Vikhrova, L. I.-296
Vilesov, F. I.-186, 265, 306, 307, 308, 359, 412, 475
Vinogradov, P. S.-415
Virin, L. I.-296
Vladimirova, V. I.-159
Vorob'ev, A. A.-311
Votinov, M. P.-317, 318
Vyboishchikov, F. P.-320

Y

Yakovlev, B. S.-291
Yalovik, M. S.-177
Yampolskii, P. A.-62, 394
Yampolskii, Yu. P.-247
Yasina, L. L.-494

Z

Zador, É.-421
Zagorets, P. A.-81, 148, 312
Zamaraev, K. I.-341
Zansokhova, A. A.-406
Zasiavskii, Yu. S.-404
Zhabrova, G. M.-159
Zhestkova, A. A.-406
Zimin, A. V.-375
Zolotovitskii, Ya. M.-300, 413
Zubarev, V. N.-394

HIGH ENERGY CHEMISTRY
Volume 4, Numbers 1-6, 1970
(A translation of Khimiya Vysokikh Énergii)

Volume 4, Number 1 January-February, 1970

	Engl.	Russ.
Excited and Superexcited Electronic States of Atoms and Molecules and Their Role in Radiation Chemistry – V. I. Makarov and L. S. Polak	1	3
The Photosensitized Homolytic Dissociation of Simple Bonds – M. G. Kuz'min and L. N. Guseva	19	24
Spectroscopic Study of Phenothiazine Photodehydrogenation in Solution – V. E. Kholmogorov	23	28
Secondary Photochemical Processes Occurring during Two-Quantum Photoionization of Aromatic Amines at 77°K – V. A. Kondrat'ev and Kh. S. Bagdasar'yan	28	35
Photodecomposition of Alcohols Adsorbed on γ-Irradiated Silica Gel – N. F. Shamonina, A. G. Kotov, and S. Ya. Pshezhetskii	35	43
Structure and Photochemical Transformations of the para-Magnetic Centers in a γ-Irradiated Cysteine Hydrochloride Single Crystal – V. G. Krivenko, L. P. Kayushin, and M. K. Pulatova	40	49
Radiolysis of Acetone. V. Inclusion Compound of Acetone with Urea – A. L. Karasev and and V. A. Larin	46	56
Surface Centers of γ-Irradiated Silica Gel: Investigation EPR of the Influence of the Adsorption of Oxygen and Nitric Oxide – O. I. Lyubimova and A. G. Kotov	52	62
Radiolysis of the N_2O_4–HNO_3 System in the Liquid and Solid States – L. A. Dmitriev, S. A. Kamenetskaya, and S. Ya. Pshezhetskii	57	68
Mechanism of Shock-Wave Polymerization – P. A. Yampol'skii and T. N. Ignatovich	62	74
Photochemiluminescence of Glycyltryptophan Solutions: Effect of pH on Intensity and Yields of Chemiluminescence – I. I. Sapezhinskii and E. G. Dontsova	65	77
BRIEF COMMUNICATIONS		
Radiation-Induced Vulcanization of Polyisobutylene in the Presence of para-Divinyl Benzene – I. P. Kim, I. M. Barkalov, and E. V. Egorov	69	81
Volatile Products from the Decomposition of the Benzene Molecule by Tritium Recoil Atoms – E. N. Avdonina	71	83
Structure of Free Radicals in γ-Irradiated Polypropylene – É. R. Klinshpont and V. K. Milinchuk	73	84
Radiation-Chemical Synthesis of Hydrocyanic Acid under Flow Conditions – B. G. Dzantiev, V. N. Popov, and Yu. N. Smelova	75	86
Radiolysis of Aqueous Solutions of Some Organic Compounds – S. A. Brusentseva, P. I. Dolin, V. N. Shubin, and A. G. Pribush	77	88
Interaction of para-Toluidine with 1,2,2,4-Tetrachloranthraquinone during Shock-Wave Compression – E. P. Fokin, A. A. Deribas, V. A. Loskutov, and V. I. Mali	79	89
Radiolysis of Alkyl Aromatic Amines in Two-Phase Water–Organic Systems – V. I. Kershulis, G. F. Egorov, and P. A. Zagorets	81	91
Effect of the Unshared Electron Pair on the Nitrogen Atom on the Photochemical Properties of Radicals in Irradiated Amines – A. G. Kotov, G. V. Pukhal'skaya, and S. Ya. Pshezhetskii	83	93

Volume 4, Number 2 March-April, 1970

Wave Theory for the Cross Sections of Gas-Phase Substitution Reactions. I. Derivation of the Equations for the Cross Sections – V. G. Levich, A. M. Brodskii, and V. V. Tolmachev 87 101
Ion Dissociation in n-Octane, n-Hexane, Benzene, and Formic Acid – S. E. Kupriyanov 93 108
Production of Defluorinated Phosphates in a Low Temperature Plasma Jet – V. V. Pechkovskii, A. L. Mossé, A. I. Teterevkov, V. A. Ershov, A. A. Chelnokov, and I. A. Dvindenko 98 114
The Mechanism of Two-Photon Sensitization of Bond Rupture in Organic Molecules at 77°K. II. Concomitant Molecular Interactions and the Role of Energy Transfer in Solutions of Alkyl Halides – V. V. Ryl'kov and V. E. Kholmogorov 102 119
Photodissociation of H_2O, D_2O, and H_2O_2 at the Surface of Magnesium Oxide – A. A. Pankratov 107 126
Photochromy of Organic Substances. II. Kinetics of Reversible and Irreversible Phototransformations of 2-(2',4'-Dinitrobenzyl)pyridine – A. A. Parshutkin, V. P. Bazov, and V. A. Krongauz 111 131
Kinetics of Radiation Polymerization of Methyl Methacrylate in Wood – V. I. Glukhov, G. V. Shiryaeva, and V. L. Karpov 118 139
Effect of Acceptors on Stabilization of Electrons in Frozen Vitreous Aqueous Solutions – I. A. Batyuk, E. N. Borisova, L. T. Bugaenko, and V. M. Byakov 122 143
Paramagnetic Centers on Irradiated Synthetic Zeolites – Yu. A. Breslav and A. G. Kotov 127 149
Decomposition of Potassium Persulfate Subjected to an Explosion – A. I. Lapshin, V. E. Borodaevskii, and S. S. Batsanov 132 154
Mechanism of Redox Processes in Solutions of Certain Fe(III) Complexes in an Ultrasonic Field – M. A. Margulis and A. N. Mal'tsev 137 160

ABSTRACTS

Free Radicals in Polyamides Irradiated with Fast Neutrons – R. S. Biktimorov and Yu. A. Kondrat'ev 144 169
Two-Quantum Cross Linking of Polyethylene Photosensitized by Benzoyl Chloride – D. A. Andrushchenko, A. A. Kachan, G. V. Chernyavskii, and V. A. Shrubovich 144 169
Reaction of Tritium Recoil Atoms with Several Analine Derivatives – E. F. Simonov . . 145 171
The OH Radical in Condensed Systems, Studied by Using Pulsed Illumination – V. A. Kuz'min and A. K. Chibisov 146 171
Radiation-Chemical Oxidation and Nitration of the Aliphatic Diluent in Two-Phase Aquo–Organic Systems – V. I. Kershulis, G. F. Egorov, and P. A. Zagorets 148 172
The Radiation-Induced Emulsion Polymerization of Styrene – V. I. Lukhovitskii, V. V. Polikarpov, A. M. Lebedeva, R. M. Lagucheva, and V. L. Karpov. . . . 149 173
Photochromy of Organic Substances. III. Influence of Temperature and the Nature of the Solvent on Reversible and Irreversible Phototransformations of 2-(2',4'-Dinitrobenzyl)pyridine (DNBP) – V. P. Bazov, A. A. Parshutkin, and V. A. Krongauz 150 174
Photochromy of Organic Substances. IV. Peculiarities of the Behavior of the System 2,2',4,4',5,5'-Hexaphenyl-1,2-biimidazolyltriphenylimidazyl Radicals in Solutions – A. L. Prokhoda and V. A. Krongauz 152 176

BRIEF COMMUNICATIONS

Inhibition of the Process of Energy Transfer in the Reactions of Hot Atoms and in the Radiolysis of Aromatic Systems – É. S. Filatov and P. P. Kukin 153 177

Determination of the Rate Constant of the Reaction of e^-_{aq} with an Acceptor in Neutral Water by a Pulsed Method – N. S. Fel' 155 178
Study of the Steric Distribution of Radicals in the α- and γ-Radiolysis of Methanol and an Aqueous Solution of H_2SO_4 at 77°K by the Electronic Spin Echo Method – A. M. Raitsimring, V. M. Moralev, and Yu. D. Tsvetkov 157 180
Radiation-Catalytic Activity of Diamond and Graphite – V. I. Vladimirova, G. M. Zhabrova, B. M. Kadenatsi', P. G. Krivernkova, V. P. Butuzov, and D. F. Korolev 159 182
Influence of Halogens on Ionization in a Low-Pressure Acetylene – Air Flame – V. I. Tverdokhlebov and N. N. Chirkin 161 183
Nuclear γ-Resonance and EPR Studies of the Action of Proton Radiation on Oxalates of Iron – L. P. Eremin, V. T. Shipatov, V. A. Tarasov, and P. P. Seregin. ... 163 185
Elimination of Trapped Electrons in Alkali Glass γ-Irradiated at 77°K – B. G. Ershov and E. L. Tseitlin 165 186
Stabilization of Electrons in γ-Irradiated Ice Containing Alcohol at 77°K – S. A. Puntezhis, B. G. Ershov, and A. K. Pikaev 166 187
Reactions of Excited Propyl Radicals during Gas-Phase Photolysis of Propyl Iodide – B. G. Dzantiev, I. A. Degterev, and A. P. Shvedchikov 168 188

Volume 4, Number 3 May-June, 1970

Wave-Mechanical Theory for the Cross Sections of Gas-Phase Substitution Reactions. II. Overlap Integral and General Properties and Energetic and Angular Dependences of the Cross Sections – A. M. Brodskii, V. G. Levich, and V. B. Tolmachev 171 195
High-Temperature Vibrational Relaxation and Dissociation of Nitrogen – S. A. Losev and M. S. Yalovik 177 202
Description of Relaxation Processes in Gases with the Help of the Numerical Solution of the Boltzmann Equation – L. S. Polak, A. N. Temchin, and A. V. Khachoyan 182 208
A Study of Photo-Ionization Processes in Ethyl Halide Vapors – M. E. Akopyan, Yu. L. Sergeev, and F. I. Vilesov 186 213
Reactions between Atomic Oxygen and Methane on Photolysis of a Gaseous Mixture of $O_2 + CH_4$ in the 1925-1550 Å Range – F. I. Vilesov and A. M. Pravilov 191 220
Dependence of Hydrogen Yields on Concentration during γ-Radiolysis of Cyclohexane–Benzene Mixtures – E. N. Avdonina 196 226
Influence of Aromatic–Hydrocarbon Additives on the Radiochemical Stability of Tributyl Phosphate in Dodecane Solution – E. V. Barelko, I. P. Solyanina, and Z. N. Tsvetkova 199 229
Reactions of Atomic Hydrogen with Some Saturated Heterocyclic Compounds in the Solid Phase at Low Temperatures – V. D. Shatrov, L. I. Belen'kii, and I. I. Chkheidze 204 235
Reactions of Photoexcited Radicals of the Allyl Type with Hydrocarbon Molecules in the Solid Phase – V. A. Roginskii and S. Ya. Pshezhetskii 208 240
Radiation-Chemical Processes in Polyesters of Terephthalic Acid – E. Kroh and M. Petshak 213 246
Radiation Stability of Butyl Rubber Copolymers – V. Dziedziela and E. Kroh 216 250
The Mechanism of Product Formation in the Radiolysis of Water – V. M. Byakov and E. P. Kalyazin 220 255
A Study of the Scattering of Hydrogen Atoms in the Noble Gases – Yu. N. Belyaev, N. V. Kamyshov, and V. B. Leonas 224 260

The Vibrational Relaxation of Oxygen Molecules in Admixture with Argon at Temperatures up to 10,000°K – S. A. Losev and O. P. Shatalov 227 263
The Initial Stage of the High-Temperature Pyrolysis of Methane – T. V. Fedoseeva, N. Ya. Chernyak, G. V. Gulyaev, and L. S. Polak 231 268

ABSTRACTS

A Study of the Intermediate Compositions in the Photochemical Reactions of Dyes IV. Oxidation–Reduction Transformations of Methylene Blue and Methylene Green in Pulsed Photoexcitation – A. K. Chibisov, G. P. Roitman, and A. V. Karyakin 235 273
An Investigation of Structure Formation in Ethylene–Propylene Rubber under the Action of γ-Irradiation – L. B. Smetanina, S. S. Leshchenko, Z. S. Egorova, and V. L. Karpov..... 236 274
The Radiation Stability in Water of an Ankalite K-2 Ion-Exchange Membrane – P. E. Tulupov and V. P. Greben'..... 237 275
The Dissociation of Normal Paraffins and Some Other Hydrocarbons on Ionization with Metastable Atoms of Inert Gases and Electrons – V. Yu. Orlov and M. V. Gur'ev. 238 276
Gas Radiolysis in an Electric Field. III. Numerical Solution for the Current–Voltage Characteristic and Effect of the Field on the Average Ion Concentration in the Ionization Chamber – G. V. Karachevtsev, A. M. Kogan, I. K. Larin, E. M. Mostovaya, and V. L. Tal'roze 239 277
Electron Attachment and Molecular Dissociation in a Glow Discharge in an Electronegative Gas. I. Role of Dissociative Attachment of Electrons in the Discharge Mechanism – A. I. Maksimov, V. D. Sizov, and L. I. Tararyshkina 240 278
Electron Attachment and Molecular Dissociation in a Glow Discharge in an Electronegative Gas. II. Effect of Molecular Dissociation of the Properties of the Gas-Discharge Plasma – A. I. Maksimov, V. D. Sizov, and L. I. Tararyshkina 241 279
Ion-Molecular Rearrangement Reactions in Chlorine–Carbon Compounds. I. $N_2 + CCl_4$ – N. A. Gur'eva and O. K. Fomin..... 242 279

BRIEF COMMUNICATIONS

Gas Phase Radiolysis of Hydrogen Sulfide and Propane under the Influence of the Particles Formed in the Reaction $^{10}B(n, \alpha)^7Li$ – K. Ezerska, M. Forys, and M. Taube 243 280
Spectroscopic Investigation of the Low-Temperature Radiolysis of Some Polyolefins – G. G. Dzhibgashvili, N. A. Slovokhotova, S. S. Leshchenko, and V. L. Karpov ... 245 281
Chemical Action of Laser Radiation on Acetylene – Yu. P. Yampol'skii, Yu. V. Maksimov, N. P. Novikov, and K. P. Lavrovskii 247 283
Extinction Coefficients of Aromatic Cations in Ethanol at 77°K – V. A. Smirnov, M. V. Alfimov, and O. M. Andreev 249 285
Mechanism of Primary Processes during Photolysis of Tri-(Ethylenediamine)cobalt (III) Chloride – G. A. Shagisultanova, A. L. Poznyak, and B. A. Budkevich 251 286

Volume 4, Number 4 July-August, 1970

Processes for the Destruction of the n-Hexane Molecule Due to the Action of Tritium Recoil Atoms – E. N. Avdonina..... 253 291
Determination of the Rate Constants of Chemical Reactions in Experiments Using a Periodic Source – A. M. Brodskii and A. A. Chernenko 258 297
Photoionization in Vapors of Aliphatic Sulfides. I. Methyl Mercaptan, Dimethyl and Diethyl Sulfides – M. E. Akopyan, Yu. L. Sergeev, and F. I. Vilesov..... 265 305

The Mechanism of Two-Photon Sensitization of Chemical Bond Rupture in Organic Molecules at 77°K. III. Spectral Investigation of Ionization and Sensitization in Ethereal Solutions – V. V. Ryl'kov and V. E. Kholmogorov 270 311
The Effect of Temperature and Oxygen on the Composition of the γ-Radiolysis Products of Isooctane (2,2,4-Trimethylpentane) – V. I. Pichuzhkin, V. V. Saraeva, and N. A. Bakh. 275 317
The Destruction of Free Radicals in Irradiated Organic Crystals – V. A. Tolkachev 279 322
γ-Radiolysis of Tin Oxides – A. A. Bekker, P. B. Fabrichnyi, V. V. Pozdeev, A. M. Babeshkin, and An. N. Nesmeyanov 284 328
Kinetics for the Radiation Polymerization of Solid Acrylonitrile in the Regions of Phase Transitions – D. A. Kritskaya, A. N. Ponomarev, and V. L. Tal'roze 287 332
Stabilized Ions and the Formation of Cross Links in the Radiolysis of Polybutadiene – G. F. Novikov, V. T. Kozlov, B. S. Yakovlev, and E. L. Frankevich 291 337
Ionic-Molecular Reactions of Aromatic Compounds. IV. The Toluene – Carbon Tetrachloride System – L. I. Virin, Yu. A. Safin, L. I. Vikhrova, and R. V. Dzhagatspanyan 296 342

ABSTRACTS

Photochemical Addition of Hydrogen Iodide to Olefins – I. M. Barkalov, V. I. Gol'danskii, B. G. Dzantiev, A. M. Kaplan, Sh. Kurmashov, and A. P. Shvedchikov 299 345
Photoemission from a Metal in an Electrolytic Solution as a Method of Studying Fast Chemical Reactions – L. I. Korshunov, Ya. M. Zolotovitskii, V. A. Benderskii, and V. I. Gol'danskii 300 346
Theory of Radiolysis in a Periodic Source Field – A. A. Chernenko and A. M. Brodskii. . 302 347
Radiation Catalytic Synthesis of Ethylenediamine and Oxalic Acid on Zeolites – Yu. A. Breslav, A. G. Kotov, and S. Yu. Pshezhetskii 303 348
The Mechanism of Two-Photon Sensitization of Bond Rupture in Organic Molecules at 77°K. IV. Spectral Investigation of Photoreaction of Aromatic Amines and N-Heterocyclic Compounds with Alcohols – V. E. Kholmogorov and A. P. Bobrovskii. 303 349
The Mechanism of Two-Photon Sensitization of Bond Rupture in Organic Molecules at 77°K. V. Spectral Investigation of Photoionization and Sensitization in Triethylamine – V. V. Ryl'kov and V. E. Kholmogorov. 305 349
Photoionization in Vapors of Aliphatic Sulfides. II. Ethyl Propyl, Dipropyl, and Methyl Amyl Sulfides – M. E. Akopyan, I. L. Sergeev, and F. I. Vilesov 306 351
Photoionization in Vapors of Aliphatic Sulfides. III. Propyl Butyl, Propyl Isobutyl, Dibutyl, Butyl Isobutyl, and Diisobutyl Sulfides – M. E. Akopyan, Yu. L. Sergeev, and F. I. Vilesov 307 352
Photoionization in Vapors of Aliphatic Sulfides. IV. Ethyl Amyl, Ethyl tert-Amyl, and Ethyl Isobutyl Sulfides. Ionization Potentials of Certain Sulfur-Containing Radicals – M. E. Akopyan, Yu. L. Sergeev, and F. I. Vilesov. 308 353
Photoionization and Decomposition of Aliphatic Amines – V. K. Potapov and L. I. Iskakov. 309 354
Photoionization of Aliphatic Ketones and Alcohols – V. K. Potapov and V. V. Sorokin. . 310 355
Charge Accumulation in a Plate of Radioactive Material – A. A. Vorob'ev and O. B. Evdokimov 311 356
Addition of Phosphorus Trichloride to Isobutylene under the Influence of γ-Radiation – A. G. Shostenko, P. A. Zagorets, A. M. Dodonov, and A. A. Greish. 312 357
Photochemical Decomposition of H_2O_2 in the Presence of Copper Ions. III. Determination of the Initiation Rate – Yu. N. Kozlov 313 358
Photochemical Decomposition of H_2O_2 in the Presence of Copper Ions. V. Reactions for the Continuation and Rupture of the Chain with the Participation of the Cu^{3+} Ion – Yu. N. Kozlov, V. M. Berdnikov, and A. P. Purmal. 314 359

Radical Formation in the Radiolysis of Solid bis-β-Hydroxyalkyl Sulfides – V. I. Trofimov, I. I. Chkheidze, and A. D. Malievskii 315 360
Photolysis of Hydrogen Sulfide. Effect of Added Inert Gases – B. G. Dzantiev, O. S. Shimchuk, and A. V. Shishkov 316 361
Free Radicals in γ-Irradiated Mono(2-Ethylhexyl)phosphoric and Di(2-Ethylhexyl)-phosphoric Acids and Tri-n-butylphosphate – V. P. Arkhipov, M. P. Votinov, V. N. Romanovskii, and A. M. Semushin. 317 362
γ-Radiolysis and Low-Temperature Photolysis of Maleimides – V. P. Arkhipov, M. P. Votinov, and V. S. Ivanov 318 363

BRIEF COMMUNICATIONS
Samples Warmup during Low-Temperature Photolysis – V. A. Roginskii, V. S. Chervonenko, and F. P. Vvboishchikov 320 364
Role of Charged Particles and Excited Molecules in the Radiolytic Oxidation of n-Heptane by Molecular Oxygen – M. B. Muratbekov and V. V. Saraeva 322 365
Effect of Irradiation Dose Rate and Manner of Preparation of Samples on the Kinetics of Radical Build-up in Aniline – V. A. Tolkachev and I. B. Sokolov 324 367
Space Distribution of Radicals during γ-Irradiation of Methanol at 77°K – A. M. Raitsimring, A. P. Pomytkin, and Yu. D. Tsvetkov 326 369
Determination of the Radiation Yield of Nitrite Ions in the Irradiation of Sodium Nitrate Solutions in the Small-Dose Region – E. A. Podzorova, V. D. Orekhov, I. V. Vereshchinskii, and A. M. Kabakchi 328 370
Investigation of the Effect of Ionizing Radiation on the Structure and Properties of Modified Capron Fibers – V. I. Spitsyn, N. M. Goryaev, G. M. Plavnik, G. G. Ryabchikova, V. A. Berestnev, P. Ya. Glazunov, and M. Ya. Kaplunov . . 330 372
An Observation on the Nature of Intermediate Particles in the Radiolysis of Aqueous Solutions of Oxygen – V. M. Byakov and E. P. Kalyazin. 333 373
Evidence of the Occurrence of Monomolecular Reactions in the Radiolysis of Aqueous Solutions of Oxygen – S. A. Kabakchi and V. N. Shubin 335 375
Primary Radiolysis Reactions of Nonalkaline Aqueous Solutions of Pyrimidine Bases – N. S. Fel' and P. I. Dolin 337 376
The Salt Effect during Pulsed Radiolysis of Neutral Water and Alkaline Solutions – S. A. Brusentseva 339 377
Electron Formation and Stabilization during Photolysis of Vitrified Alkaline Solutions of N,N'-Dimethyl-para-phenylene Diamine – R. F. Khairutdinov, K. I. Zamaraev, and B. N. Shelimov. 341 378
Radiothermal Isomerization of Alkyl Bromides – V. V. Pozdeev, N. V. Fomina, and K. A. Kocheshkov 343 379
Photoionization of Diethylamine and Triethylamine – L. I. Iskakov and V. K. Potapov . . 345 381

Volume 4, Number 5 September-October, 1970

Energy States of the Products of Ion–Molecular Processes – G. V. Karachevtsev. 347 387
Hydrogen Abstraction by Excited Methyl or Ethyl Radicals – B. G. Dzantiev, V. N. Korchak, V. V. Legun, and A. P. Shvedchikov 353 394
The Photolysis of O_2+CO_2 Mixtures in the Spectral Region 1925-1550 Å – F. I. Vilesov and A. M. Pravilov 359 401
Energy Migration in Polyvinylcarbazole – G. I. Lashkov 362 405
Kinetics of Product Accumulation in Two-Photon Reactions of Amines in Frozen Ethanolic Solutions – V. G. Vasil'ev, N. V. Verein, and A. K. Piskunov 366 409
Evaluation of the Radiolytic Yield of Hot Hydrogen Atoms from the Radiolysis of Hydrogen-Containing Molecules – V. E. Skurat 370 413

	Engl.	Russ.
Radiation Synthesis of Perfluorophenylchlorosilanes – A.V. Zimin, B.I. Vainshtein, and Yu.I. Sil'chenko	375	419
Radiolysis of Liquid and Solid Triethylamine – N.V. Petrukhin and S.A. Kamenetskaya	379	425
Radiolysis of Solid Solutions of Cobalt Chloride in Methyl Alcohol – E.F. Abdrashitov, L.A. Tikhomirov, and N.Ya. Buben	384	430
Problems of Radiational Solid-Phase Polymerization of Amorphous Vinyl Acetate and Dimethacrylate of Butanediol – I.G. Gusakovskaya, V.G. Nikol'skii, and V.I. Gol'danskii	387	434
Study of the Kinetics of the Annealing Process of Adsorption and Paramagnetic Centers Generated by Irradiation on the Surface of γ-Al_2O_3 by the Monte Carlo Method – V.B. Golubev, Yu.A. Kolbanovskii, S.N. Lebedev, M.N. Masterova, and L.S. Polak	391	439
Polymerization in a Shock Wave. II. Acrylamide – T.N. Ignatovich, I.M. Barkalov, I.N. Dulin, V.N. Zubarev, and P.A. Yampol'skii	394	443
Muonium Chemistry. V. Study of the Temperature Dependence of Muonium Reactions with Aromatic Halogen Compounds – G.G. Myasishcheva, Yu.V. Obukhov, V.S. Roganov, and V.G. Firsov	398	447
ABSTRACTS		
Radicals Formed in the Photolysis of Polyethers and Polyoxymethylenes – Yu.V. Gak, R.S. Goglev, V.A. Sukhov, and A.F. Lukovnikov	401	450
Photochemistry of Free Radicals. Radicals of Alcohols and Ethers – V.S. Chervonenko, V.A. Roginskii, and S.Ya. Pshezhetskii	402	450
Determination of the Absolute Value of the Rate Constant of the Reaction of Branching and the Rate of Thermal Generation of Initiating Centers for a Chain Reaction with Degenerate Branches by a Radiation Chemical Method — V.A.Poluéktov and N.G.Ageev	403	452
Conversions of 1,4-Ethene-1,4,5,6,9,10-Hexahydronaphthalene under the Action of the γ-Radiation of Co^{60} – S.F. Naumova, L.G. Tsykalo, Yu.S. Zaslavskii, and B.V. Erofeev	404	453
Dissociation of CO_2 in Sealed-off Discharge Tubes of CO_2 Lasers – V.N. Ochkin, É.N. Lotkova, and N.N.Sobolev	405	453
Measurement of the Yield of Hydrated Electrons in γ-Radiolysis in Neutral Water with the Nitrate – Methanol System – A.A. Zansokhova, T.P. Zhestkova, and A.K. Pikaev	406	454
Investigation of the Destruction of Free Radicals in Crystalline Phenol, Aniline, N-Ethylaniline, and o-Nitro-N-Methylaniline — V.A. Tolkachev, I.B. Sokolov, and V.I. Kovalevskii	407	455
Mass-Spectrometric Investigation of the Reactions of Excited Atoms and Molecules. IV. Ionization of n-Butane and Isobutane Molecules by Excited Atoms of Noble Gases – G.V. Verbovskaya and S.E. Kupriyanov	408	456
Mass-Spectrometric Investigations of Reactions of Excited Atoms and Molecules. V. Ionization of Propylene and Cyclopropane Molecules by Excited Atoms of Inert Gases – A.A. Perov, S.E. Kupriyanov, and G.V. Verbovskaya	410	458
Ion – Molecule Reactions Taking Place during the Photoionization of Aromatic Hydrocarbons and Ethanol – V.K. Potapov and V.V. Sorokin	411	459
Photolysis of a Mixture of O_2+CH_4 in the Spectral Region 1900-1550 Å. Reactions in the System $O(^3P) + O_2 + CH_4$ – A.M. Pravilov and F.I. Vilesov	412	459
Distribution Function for Solvated Electrons on Photoemission from a Metal in an Electrolyte Solution – L.I. Korshunov, Ya.M. Zolotovitskii, V.A. Benderskii, and V.I. Gol'danskii	413	461

BRIEF COMMUNICATIONS

Kinetic Energies of Protons Formed during the Collision of Electrons with Vibrationally Excited Hydrogen Molecules – P. S. Vinogradov and G. V. Karachevtsev 415 463

Reactions of Hydrogen Atoms with Frozen Hydrocarbons. III. Cyclohexylcyclohexenes – V. A. Makarov, É. S. Filatov, and A. N. Nesmeyanov. 417 465

Disproportionation and Recombination Reactions of Cyclohexyl Radicals at Low Temperatures – V. A. Makarov and É. S. Filatov. 419 467

Isotopic Effect during the Radiolysis of Frozen Aqueous Solutions of Acids – L. T. Bugaenko, É. Zador, V. N. Belevskii, and V. B. Golubev 421 468

Limiting Concentrations of Stabilized Free Radicals during Irradiation of Several Aromatic Compounds – V. A. Tolkachev and I. B. Sokolov 423 469

Kinetics of the Low-Dose Radiolysis of Concentrated Aqueous Acidic Solutions of Sodium Nitrate – E. A. Podzorová, V. D. Orekhov, I. V. Vereshchinskii, and A. M. Kabakchi. 425 471

Yield of Solvated Electrons during γ-Radiolysis of Alkaline Methanol — G. K. Sibirskaya and A. K. Pikaev. 427 472

Investigation of the Action of Proton and Mixed γ-Neutron Radiation on Tin Compounds by the Mossbauer Method – V. T. Shipatov, P. O. Seregin, L. P. Eremin, and S. I. Bondarevskii 429 474

CHRONICLES

International Conference on Primary Radiation Processes in Chemistry and Biology – A. K. Pikaev. 431 476

All-Union Conference on the Radiation Physical Chemistry of Ionic Crystals – V. N. Shubin 434 478

Volume 4, Number 6 November-December, 1970

Radiation Chemical Synthesis of Organic Compounds in Liquid Nonaqueous Systems (Survey) – I. V. Vereshchinskii. 437 483

Kinetic Isotope Effect of Reactions of Hot Atoms in Gaseous Mixtures – A. M. Brodskii and A. Ya. Temkin. 451 499

Accuracy of Mass-Spectrometric Measurements in Studies of Ion – Molecular Interactions at High Pressures – U. A. Arifov, S. L. Pozharov, and I. G. Chernov. 456 505

Thermodynamic Properties of Pentafluorides at High Temperatures. I. Method of Calculation – N. P. Galkin, Yu. N. Tumanov, and Yu. P. Butylkin. 462 512

Formation of Acetylene and Its Homologs in a Natural-Gas Plasma Stream – Yu. N. Kobzev, G. I. Kozlov, and G. N. Khudyakov. 468 519

Gas-Phase Photolysis of HI – C_3H_6 Mixtures – B. G. Dzantiev, N. N. Eliseeva, G. D. Tantsyrev, and A. P. Shvedchikov 471 522

Photolysis of Gaseous Oxygen – Methane Mixtures. Effects of O_2, He, and Ar on Product Yields from the Reactions $O(^1D) + CH_4$ and $O(^3P) + CH_4$ – F. I. Vilesov and A. M. Pravilov. 475 526

The Mechanism of the Formation of C_1-C_6 Alkanes in the Action of Recoil Tritium Atoms on Cyclohexane – E. N. Avdonina 479 531

Investigation of Radicals Formed during γ-Irradiation of Alkyl Halides in Their Own Matrix and in Urea at 77°K – A. P. Kuleshov, V. I. Trofimov, and I. I. Chkheidze. 483 535

Engl./Russ.

BRIEF COMMUNICATIONS

Effect of Water on the Radiation Chemical Stability of Crystalline $NaNO_3$ – V. M. Lykhin 489 541

Infrared Investigation of the Action of Ionizing Radiation on Carbon-Chain Polymers – A. N. Goryachev and L. N. Pankratova 491 542

Measurement of the Dissociation Sections of Carbon Monoxide and Nitric Oxide on Electron Impact – A. I. Maksimov, V. I. Svettsov, V. F. Sokolov, and T. A. Bezzubenko 492 543

The Photolysis of Hydrogen Sulfide. The Hydrogen Removal Reaction by Hot H* Atoms from Deutero Compounds – B. G. Dzantiev, A. D. Pershin, O. S. Shimchuk, A. V. Shishkov, and L. L. Yasina 494 545

Reactivity of Ce^{4+} Ions in Irradiated Aqueous Solutions of Sulfuric Acid – F. G. Nichiporov and V. M. Byakov 496 546

Yields of Hydrogen Peroxide in Aqueous Solutions of Thallium Sulfate – F. G. Nichiporov 498 548

A Plasmochemical Reactor with Opposed-Jet Mixing of the Reacting Masses – S. N. Shorin, A. I. Smorodin, and V. N. Troitskii 499 549

Feasibility of the Thermal Decomposition of Methyl Alcohol in Fission Fragment Tracks – E. A. Borisov, L. A. Bulanov, and E. V. Starodubtseva. 501 550

Formation of Excited H_2^+ Ions by Dissociative Ionization of SiH_4 and GeH_4 Molecules by Means of Electrons – A. A. Perov and S. E. Kupriyanov 503 551

The Photoionization of Pyrrole, Furan, and Thiophene – V. K. Potapov and B. A. Bazhenov. 505 553

Ion-Molecular Reactions which Take Place during the Photoionization of Acetone, Acetophenone, and Ethanol – V. K. Potapov and V. V. Sorokin 508 556

INDEX

Author Index, Volume 4, Numbers 1-6, 1970 513

Tables of Contents, Volume 4, Numbers 1-6, 1970 517